CLAIMS

What is claimed is:

1. An antibody having an activity of recognizing GM1 ganglioside-bound amyloid ß-protein and inhibiting the formation of amyloid fibrils, the antibody comprising a heavy chain variable region, wherein the heavy chain variable region comprises at least one region of the regions described in a), b) and c):

a) a first region consisting of an amino acid sequence of SEQ ID NO: 1, or the amino acid resulted from a partial alteration of SEQ ID NO: 1;

b) a second region consisting of an amino acid sequence of SEQ ID NO: 2 or the amino acid sequence resulted from a partial alteration of SEQ ID NO: 2; and

c) a third region consisting of an amino acid sequence of SEQ ID NO: 3 or the amino acid sequence resulted from a partial alteration of SEQ ID NO: 3.

2. An antibody having an activity of recognizing GM1 ganglioside-bound amyloid ß-protein and inhibiting the formation of amyloid fibrils, the antibody comprising a light chain variable region, wherein the light chain variable region comprises at least one region of the regions described in d), e) and f):

d) a fourth region consisting of an amino acid sequence of SEQ ID NO: 4, or the amino acid sequence resulted from a partial alteration

of SEQ ID NO: 4;

e) a fifth region consisting of an amino acid sequence of SEQ ID NO: 5, or the amino acid sequence resulted from a partial alteration of SEQ ID NO: 5; and

f) a sixth region consisting of an amino acid sequence of SEQ ID NO: 6, or the amino acid sequence resulted from a partial alteration of SEQ ID NO: 6.

3. An antibody having an activity of recognizing GM1 ganglioside-bound amyloid ß-protein and inhibiting the formation of amyloid fibrils, the antibody comprising: a heavy chain variable region; and a light chain variable region, wherein the heavy chain variable region comprises complementarity determining regions (CDRs) described in g), h) and i), and the light chain variable region comprises CDRs described in j), k) and l);

g) CDR 1 consisting of an amino acid sequence of SEQ ID NO. 1, or the amino acid sequence resulted from a partial alteration of SEQ ID NO: 1;

h) CDR 2 consisting of an amino acid sequence of SEQ ID NO. 2, or the amino acid sequence resulted from a partial alteration of SEQ ID NO: 2;

i) CDR 3 consisting of an amino acid sequence of SEQ ID NO. 3, or the amino acid sequence resulted from a partial alteration of SEQ ID NO: 3;

j) CDR 1 consisting of an amino acid sequence of SEQ ID NO. 4, or the

amino acid sequence resulted from a partial alteration of SEQ ID NO: 4;

k) CDR 2 consisting of an amino acid sequence of SEQ ID NO. 5, or the amino acid sequence resulted from a partial alteration of SEQ ID NO: 5; and

l) CDR 3 consisting of an amino acid sequence of SEQ ID NO. 6, or the amino acid sequence resulted from a partial alteration of SEQ ID NO: 6.

4. An antibody having an activity of recognizing GM1 ganglioside-bound amyloid ß-protein and inhibiting the formation of amyloid fibrils, the antibody comprising a heavy chain variable region, wherein the heavy chain variable region comprises an amino acid sequence of SEQ ID NO: 7, or the amino acid sequence resulted from a partial alteration of SEQ ID NO: 7.

5. An antibody having an activity of recognizing GM1 ganglioside-bound amyloid ß-protein and inhibiting the formation of amyloid fibrils, the antibody comprising a light chain variable region, wherein the light chain variable region comprises an amino acid sequence of SEQ ID NO: 8, or the amino acid sequence resulted from a partial alteration of SEQ ID NO: 8.

6. An antibody having an activity of recognizing GM1 ganglioside-bound amyloid ß-protein and inhibiting the formation of

amyloid fibrils, the antibody comprising: a heavy chain variable region; and a light chain variable region, wherein the heavy chain variable region comprises an amino acid sequence of SEQ ID NO: 7, or the amino acid sequence resulted from a partial alteration of SEQ ID NO: 7; and the light chain variable region comprises an amino acid sequence of SEQ ID NO: 8, or the amino acid sequence resulted from a partial alteration of SEQ ID NO: 8.

7. The antibody according to claim 1, which is a humanized antibody.

8. The antibody according to claim 2, which is a humanized antibody.

9. The antibody according to claim 1, which is an antibody Fab, Fab', $F(ab')_2$, scFv, or dsFv.

10. The antibody according to claim 2, which is an antibody Fab, Fab', $F(ab')_2$, scFv, or dsFv.

11. A DNA encoding the antibody described in claim 1.

12. A DNA encoding the antibody described in claim 2.

13. A DNA encoding the heavy chain variable region of the antibody described in claim 1.

14. The DNA according to claim 13, consisting of a base sequence of SEQ ID No. 9.

15. A DNA comprising the DNA described in claim 13, which encodes an antibody heavy chain.

16. A DNA encoding a light chain variable region of the antibody described in claim 2.

17. The DNA according to claim 16, consisting of a base sequence of SEQ ID NO. 10.

18. A DNA comprising the DNA described in claim 16, which encodes an antibody light chain.

19. A DNA encoding an amino acid sequence of SEQ ID NO. 1.

20. A DNA encoding an amino acid sequence of SEQ ID NO. 2.

21. A DNA encoding an amino acid sequence of SEQ ID NO. 3.

22. A DNA encoding an amino acid sequence of SEQ ID NO. 4.

23. A DNA encoding an amino acid sequence of SEQ ID NO. 5.

24. A DNA encoding an amino acid sequence of SEQ ID NO. 6.

25. A vector holding the DNA described in claim 11 in a manner capable of its expression.

26. A vector holding the DNA described in claim 12 in a manner capable of its expression.

27. A vector holding the DNA described in claim 13 and DNA described in claim 16 in a manner capable of its expression.

28. A transformant which is transformed with the vector described in claim 25.

29. A transformant which is cotransformed with a vector holding the DNA described in claim 13 in a manner capable of its expression and a vector holding the DNA described in claim 16 in a manner capable of its expression.

30. A method for producing an antibody, the method comprising: cultivating the transformant described in claim 28; and collecting an expressed antibody.

31. A method for producing an antibody, the method comprising: cultivating the transformant described in claim 29; and collecting an

expressed antibody.